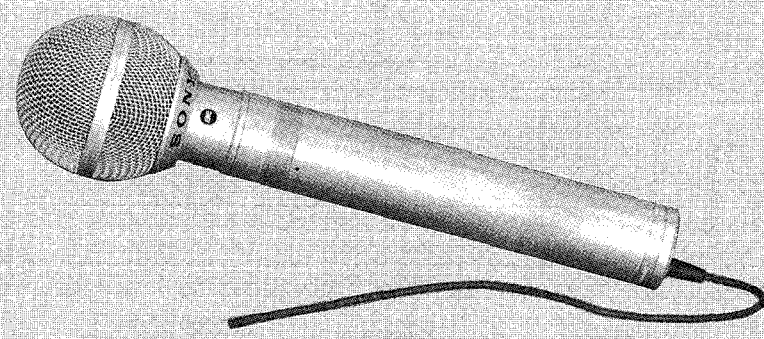
WRT-57G

AEP Model



UHF WIRELESS MICROPHONE

SPECIFICATIONS

Transmitter and modulator sections

Carrier frequency	470 – 502 MHz (Refer to page 2)
Modulation	F3 (Frequency modulation)
RF power output	20 mW at 50 ohm load
Oscillator	Crystal-controlled
Frequency stability	±25 kHz
Frequency multiplication	24
Spurious emission	2×10^{-7}W or less
Deviation	±2.4 kHz to ±75 kHz at 94 dB SPL (at 500 Hz)
Audio distortion	0.7% or less (±75 kHz deviation at 40 – 15,000 Hz)
Pre-emphasis	50 μsec
Antenna	Approx. 1/4 wave length flexible wire

Audio section

Microphone unit	Back-electret condenser capsule
Sensitivity adjustable range	30 dB
Frequency response	70 Hz – 15,000 Hz (Refer to page 2)
Directivity	Uni-directional
Signal-to-noise ratio	66 dB or more (±75 kHz deviation at 500 Hz) New DIN 45 405, PEAK
Inherent noise	34 dB SPL or less (converted to the equivalent input sound, 0 dB SPL = 2×10^{-4} μbar)
Wind noise *1	43 dB SPL or less (with the wind screen)
External magnetic field induction noise *2	5 dB SPL/milligauss or less

Power section

Power requirements	9 V dc with a mercury battery IEC designation 7MR9 or equivalent Minimum voltage: 7.0 V dc
Current consumption	35 mA or less
Battery life	Approx. 5 hours with Sony Eveready H-7D

General

Dimensions	21 mm dia. × 159 mm (7/8 inch dia. × 6 3/8 inches)
Weight	190 g (6.7 oz) including battery
Finish	Satin-nickel plate
Operating temperature	5°C to 50°C (41°F to 122°F) depending upon the operating temperature limits of the mercury battery

Design and specifications subject to change without notice.

*1 Wind noise is the value measured by applying a wind velocity of 2 m/s (6.6 ft/s) to the microphone from all directions. The mean value is taken and converted to the equivalent input sound level. (0 dB SPL = 2×10^{-4} μbar)

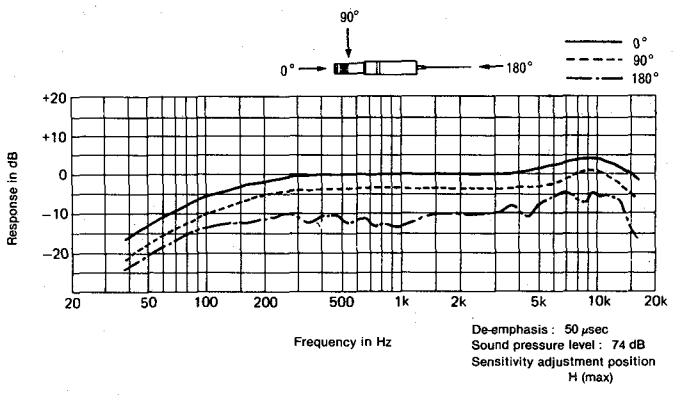
*2 The external magnetic field induction noise is measured with the microphone placed in an alternating magnetic field of 50 Hz, 1 milligauss. The maximum noise value is taken and then converted to the equivalent input sound level. (0 dB SPL = 2×10^{-4} μbar)

MICROFILM

SONY®

SERVICE MANUAL

FREQUENCY RESPONSE



SECTION 1
OUTLINE

1-1. GROUP/CHANNEL DESIGNATION

Group	Channel No.	ID color band	Transmitting frequency (MHz)	Matching WRR-57G version
21	6	brown	470.75	21-6
	12	red	471.50	
	20	orange	472.50	21-20
	30	yellow	473.75	
	42	green	475.25	21-42
	46	blue	475.75	
22	6	brown	478.75	22-6
	12	red	479.50	
	20	orange	480.50	22-20
	30	yellow	481.75	
	42	green	483.25	22-42
	46	blue	483.75	
23	6	brown	486.75	23-6
	12	red	487.50	
	20	orange	488.50	23-20
	30	yellow	489.75	
	42	green	491.25	23-42
	46	blue	491.75	

Group	Channel No.	ID color band	Transmitting frequency (MHz)	Matching WRR-57G version
24	6	brown	494.75	24-6
	12	red	495.50	
	20	orange	496.50	24-20
	30	yellow	497.75	
	42	green	499.25	24-42
	46	blue	499.75	

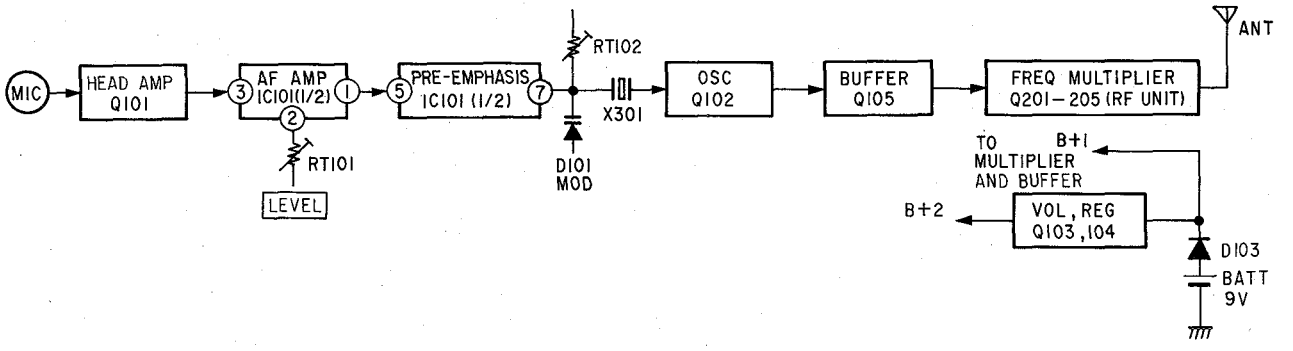
CAUTION

Although no frequencies are duplicated in the above table, operation in close proximity of equipment from different groups may result in a series of beats produced by the sound waves of different frequencies coming together.

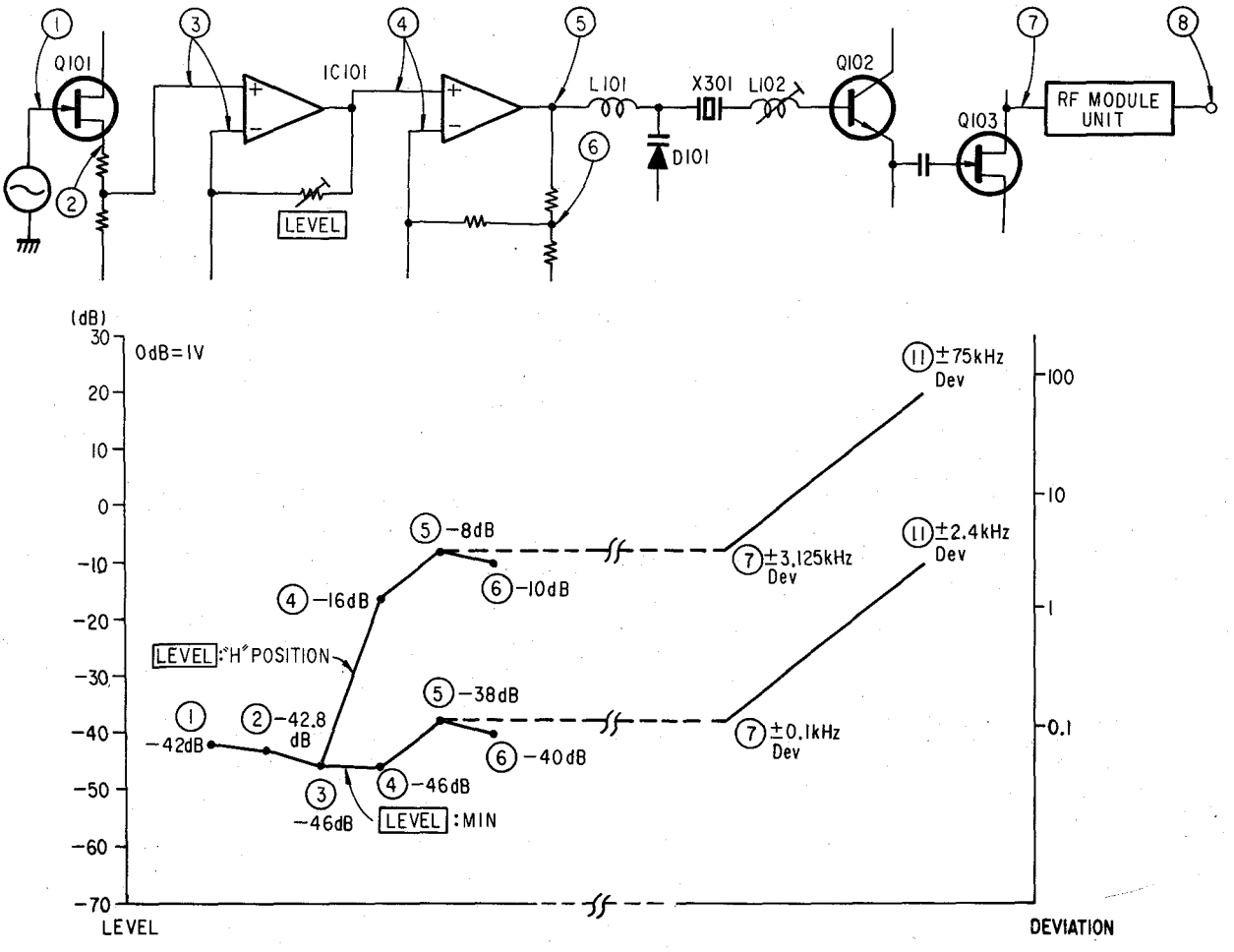
When two or more microphones are to be operated at the same time, they should be from the same group, but have different transmitting frequencies.

If the microphones are from different groups, they should be at least 100 meters apart or should be shielded from each other.

1-2. BLOCK DIAGRAM



1-3. LEVEL DIAGRAM



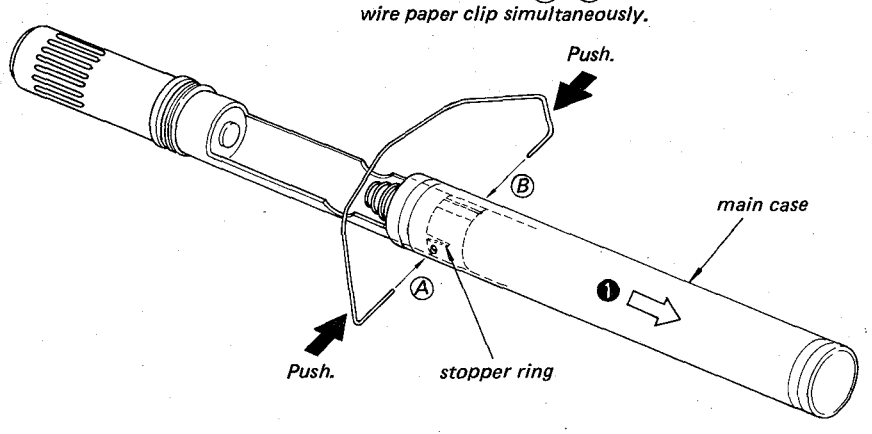
SECTION 2
DISASSEMBLY

2-1. REMOVAL

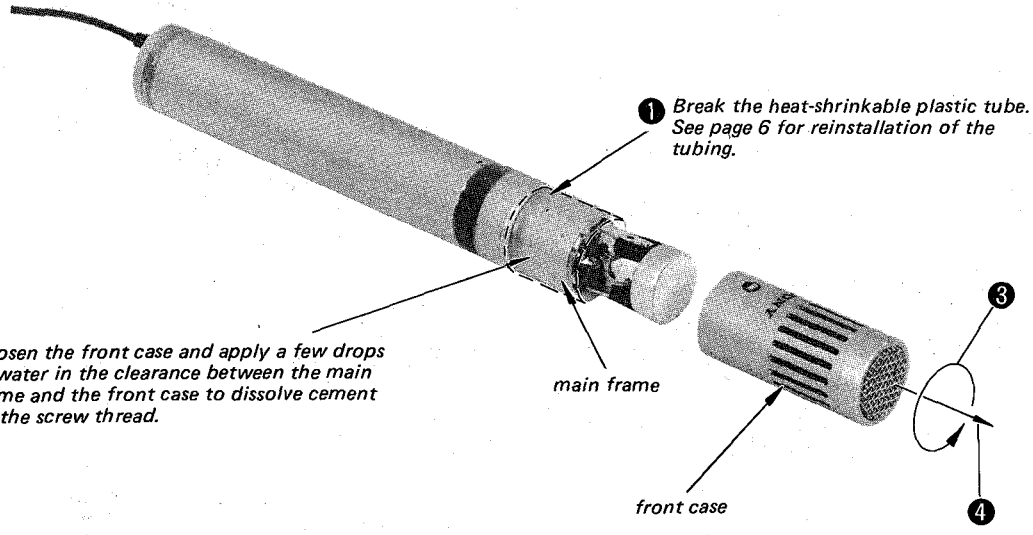
Note: Follow the disassembly procedure in the numerical order given.

Main Case

Pull out the main case in the direction of arrow (❶) while pressing the stopper ring in the holes (Ⓐ, Ⓑ) by a deformed wire paper clip simultaneously.

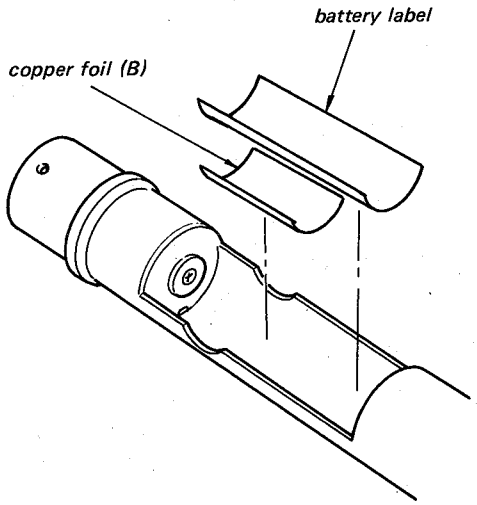


Front Case

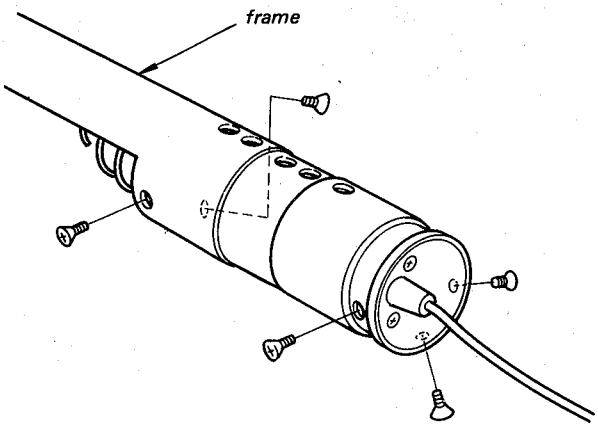

❶ Break the heat-shrinkable plastic tube. See page 6 for reinstallation of the tubing.
❷ Loosen the front case and apply a few drops of water in the clearance between the main frame and the front case to dissolve cement on the screw thread.
main frame
❸
front case
❹

RF Unit

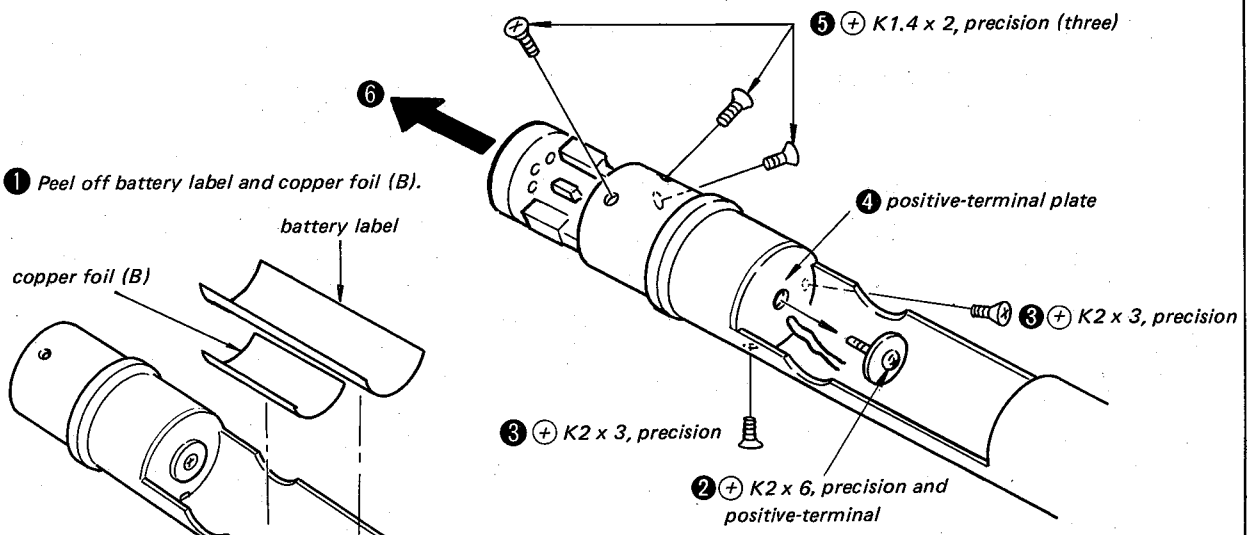
❶ Peel off battery label and copper foil (B).



❷ Remove five (5) ⊕ K2 x 3 precision screws.
The RF unit can be removed in either way.

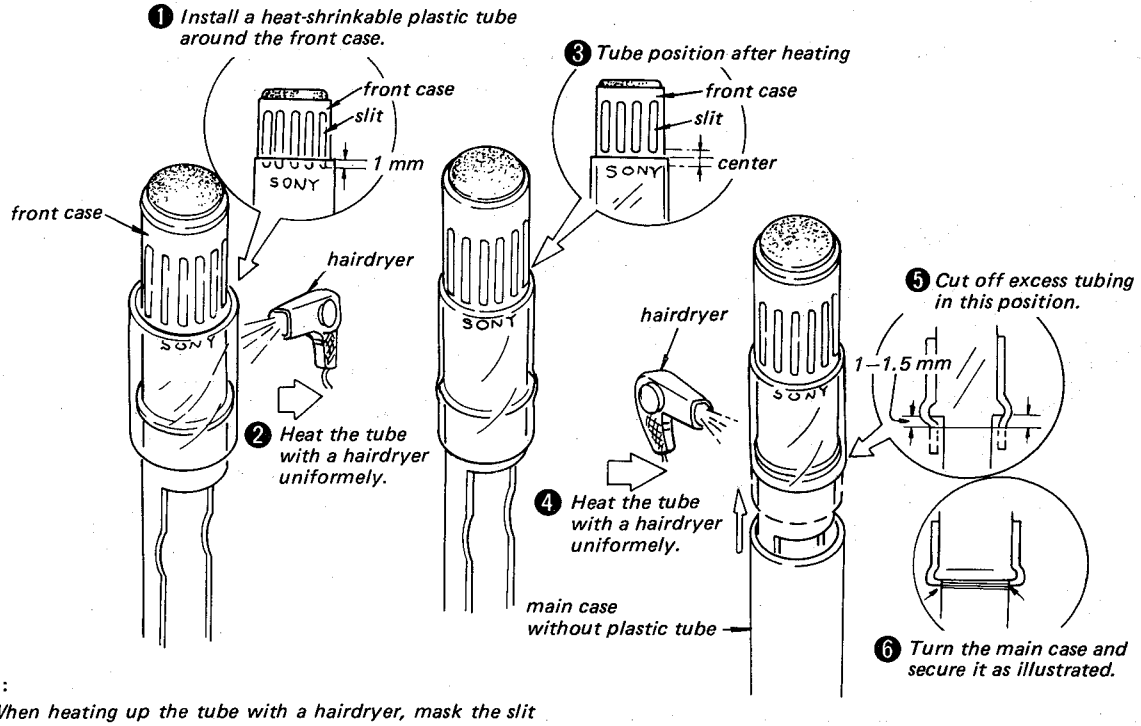


MOD/OSC Unit


❺ ⊕ K1.4 x 2, precision (three)
❻
❶ Peel off battery label and copper foil (B).
battery label
copper foil (B)
❹ positive-terminal plate
❸ ⊕ K2 x 3, precision
❸ ⊕ K2 x 3, precision
❷ ⊕ K2 x 6, precision and positive-terminal

2-2. HEAT-SHRINKABLE PLASTIC TUBE INSTALLATION

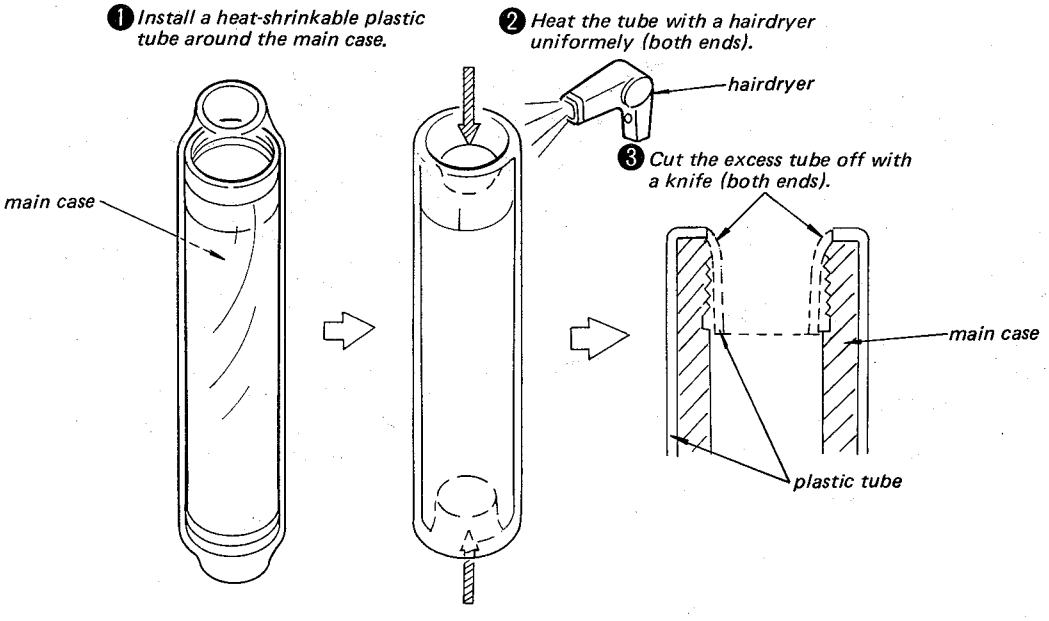
Front Case


1 Install a heat-shrinkable plastic tube around the front case.
front case
slit
1 mm
front case
hairdryer
2 Heat the tube with a hairdryer uniformely.
3 Tube position after heating
front case
slit
center
hairdryer
4 Heat the tube with a hairdryer uniformely.
5 Cut off excess tubing in this position.
1–1.5 mm
main case without plastic tube
6 Turn the main case and secure it as illustrated.

Note:

- *When heating up the tube with a hairdryer, mask the slit with tape so that the capsule is not exposed to direct heat.*
- *Be careful not to scratch the main case with a knife.*

Main Case


1 Install a heat-shrinkable plastic tube around the main case.
2 Heat the tube with a hairdryer uniformely (both ends).
hairdryer
3 Cut the excess tube off with a knife (both ends).
main case
main case
plastic tube

SECTION 3
ADJUSTMENTS

3-1. STOPPER RING REMOVAL

With care, remove the stopper ring, peel off the double-sided adhesive tape and the blind seals before performing the adjustments to the RF unit.

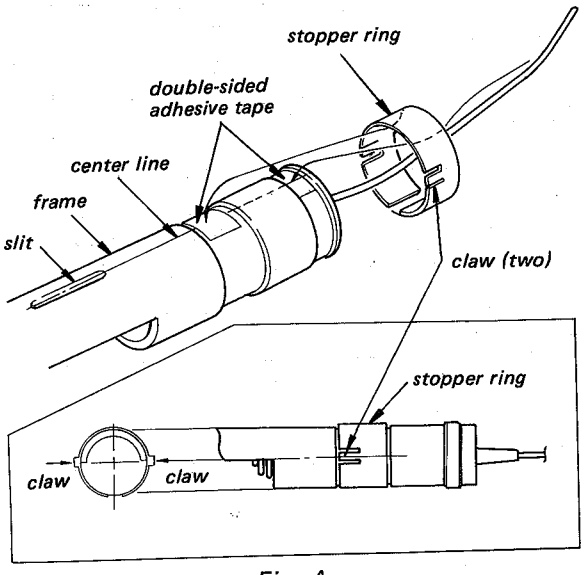


Fig. A

After the adjustments, past the blind seals and double-sided adhesive tape uniformely back on the frame. Bend the stopper ring back to a smaller size than the outer diameter of the frame. Then install the stopper ring uniformely around the groove in the frame so that it lays well below the frame's outside wall surface. Otherwise, it will become difficult to remove the frame from main case next time.

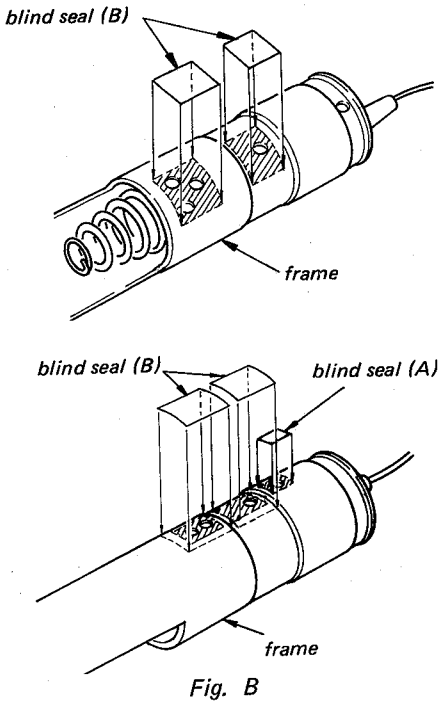


Fig. B

3-2. POWER-SUPPLY CONNECTION

Connect an external regulated dc power supply to the RF unit by removing the five precsion ⊕ K2 x 3 screws which retain the RF unit. The RF unit can be reinstalled in the original position to provide a good shielding effect and a stable operation when performing the overall adjustment.

Draw the RF unit into the center position when stage-by-stage troubleshooting is needed. Do not touch the battery-negative spring with the battery positive terminal. Provide an insulation between the negative spring and positive terminal as required.

Alternatively, a customaly-made dummy battery block with positive and negative leads at both ends will help make the overall adjustments under which condition both the MOD/OSC module and RF unit are left installed in the frame easy.

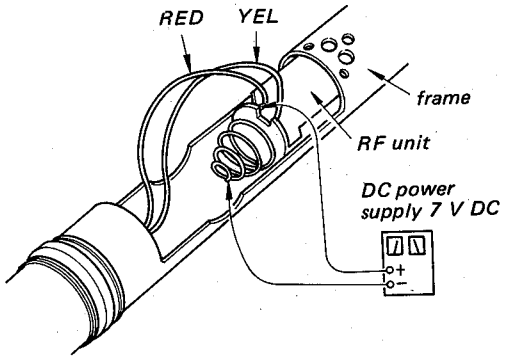


Fig. C

Dummy Battery Block for Adjustment

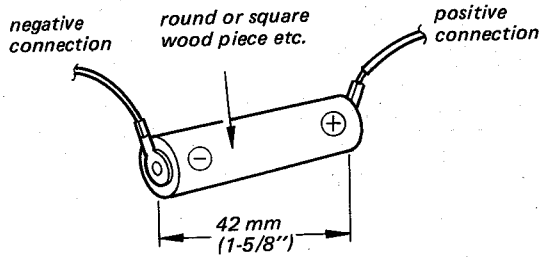


Fig. D

3-3. OVERALL ADJUSTMENT

1. Connect the equipment as shown in Fig. E on page 10.
2.

Adjustment Parts	Remarks	Ammeter Reading
CT201, 202	Adjust for a maximum reading on the ammeter. (Repeat 2 or 3 times.)	13 mA or more
CT203, 204	Adjust for a maixmum reading on the ammeter. (Repeat 2 or 3 times.)	16 mA or more
CT205	Adjust for a maximum reading on the ammeter.	19 mA or more
L204	Adjust L204 for a maximum reading on the ammeter.	29 mA or more
CT206, 208	The 24fo frequency becomes maximum.	
CT207	Adjust CT207 for the minimum spurious.	

CAUTION: Take care not to damage adjustment parts during adjustment.

3. Connect the equipment as shown in Fig. F on page 10.
4. Tune the linear detector accurately.
5. Set the frequency deviation to ±75 kHz by adjusting the attenuator (ATT).
6. Adjust RT102 for the minimum distortion. (Fig. I)
7. Turn off the AF oscillator to stop the modulation and adjust L102 so that the reading on the frequency counter is as follows. (Fig. I)

CH	Frequency (MHz)	CH	Frequency (MHz)
21-6	470.75	23-6	486.75
21-12	471.50	23-12	487.50
21-20	472.50	23-20	488.50
21-30	473.75	23-30	489.75
21-42	475.25	23-42	491.25
21-46	475.75	23-46	491.75
22-6	478.75	24-6	494.75
22-12	479.50	24-12	495.50
22-20	480.50	24-20	496.50
22-30	481.75	24-30	497.75
22-42	483.25	24-42	499.25
22-46	483.75	24-46	499.75

Unit: MHz
Standard: $^{+0.005}_{-0}$ MHz

8. Repeat steps 4 to 7 a few times until the best distortion characteristic is obtained and the set is adjusted to the specified frequency. The distortion should be less than 0.7 %.
9. Repeat step 2.
10. Change the power-supply voltage from 7 V to 9 V. Make sure that the spurious response ratio is more than 50 dB when compared to the carrier level. (Fig. E)

3-4. RF UNIT SECTION

1. Connect the unit and test equipment as shown in Fig. J. Also connect the DC power-supply system. Note the antenna is disconnected from the connection board.
2. Make sure the transmitting frequency is right.
3. Perform the step 2 in the 3-3 OVERALL ADJUSTMENT for the frequency-multiplier sections.
4. Make sure the RF output level (24 x f_0) and spurious-signal level fall in the limits as shown below.

Power-supply Voltage	Carrier Frequency Level (24 x f_0)	Spurious & Harmonics Emission Level
7 V dc	10 dBm – 12.5 dBm (123 dBμ – 125.5 dBμ)	less than −37 dBm (76 dBμ)
9 V dc	13 dBm – 15 dBm (126 dBμ – 128 dBμ)	less than −37 dBm (76 dBμ)

0 dBm = 1 mW/50 Ω

5. Disconnect the BNC jack connection and reconnect the antenna to the connection board.
6. Connect the unit and test equipment as shown in Fig. E.
7. Adjust CT206 and CT208 (Fig. H) for a maximum carrier (24 x f_0) level.

Note: See note for lead antenna on page 13.

3-5. CONNECTION DIAGRAMS

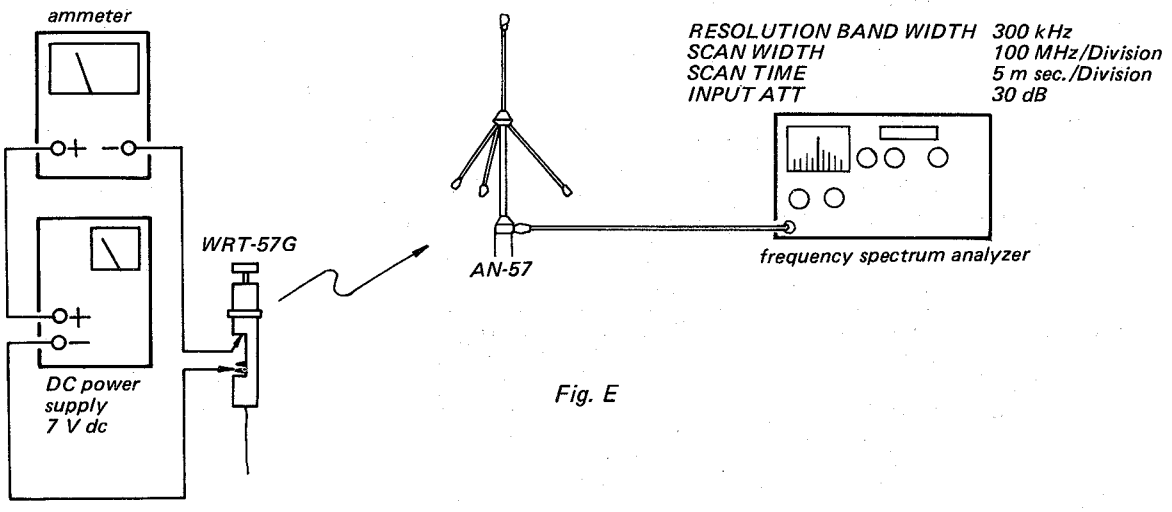
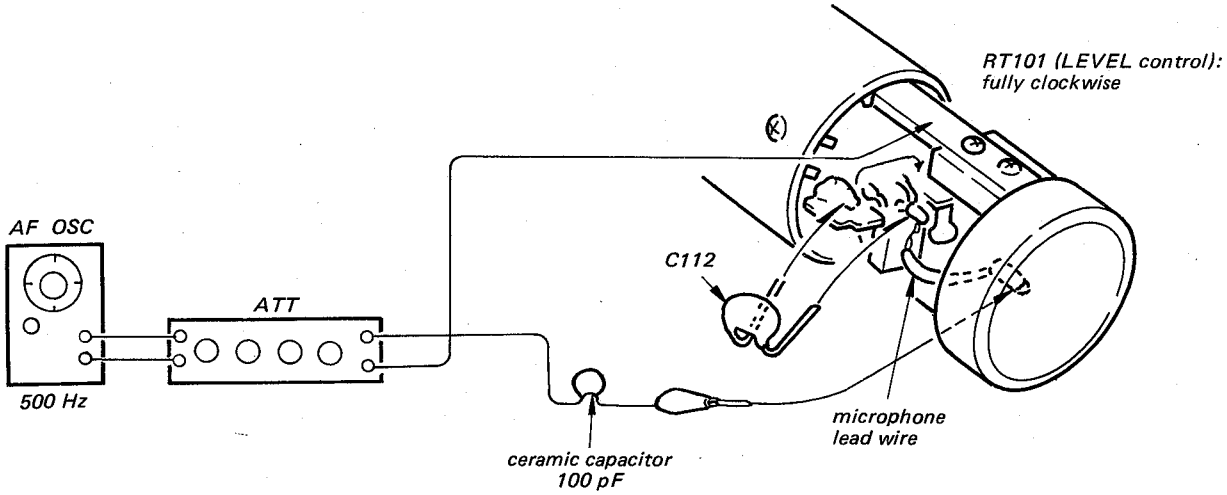


Fig. E



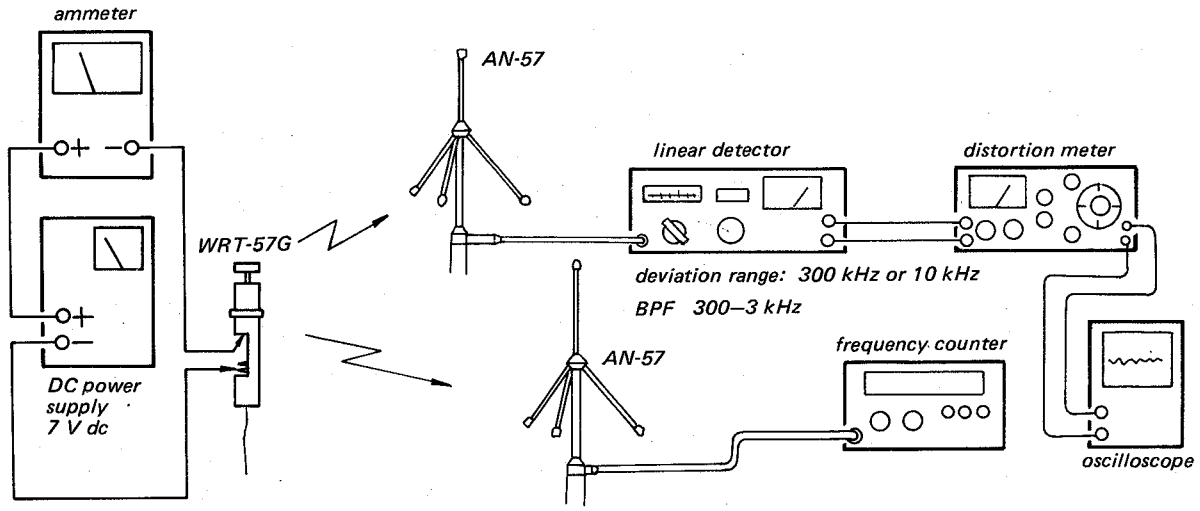


Fig. F

3-6. ADJUSTMENT PARTS LOCATION

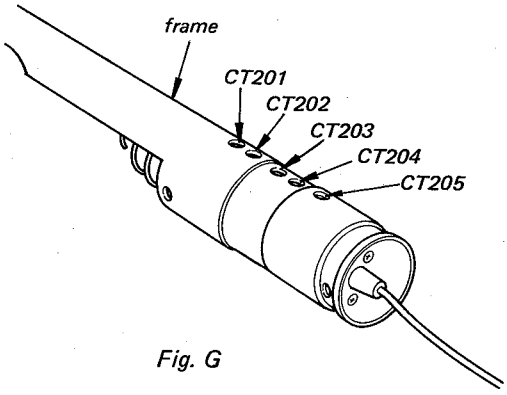


Fig. G

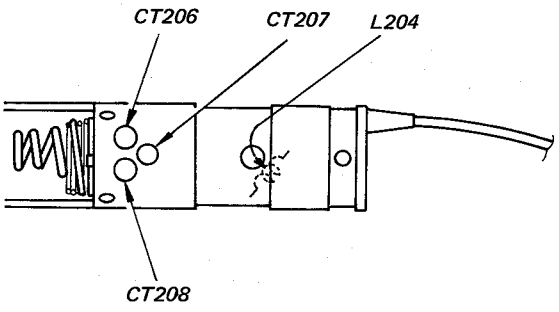


Fig. H

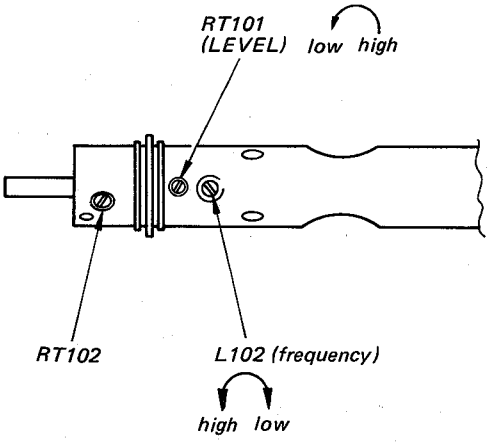


Fig. I

3-7. CONNECTION AND ADJUSTMENT PARTS LOCATION DIAGRAM

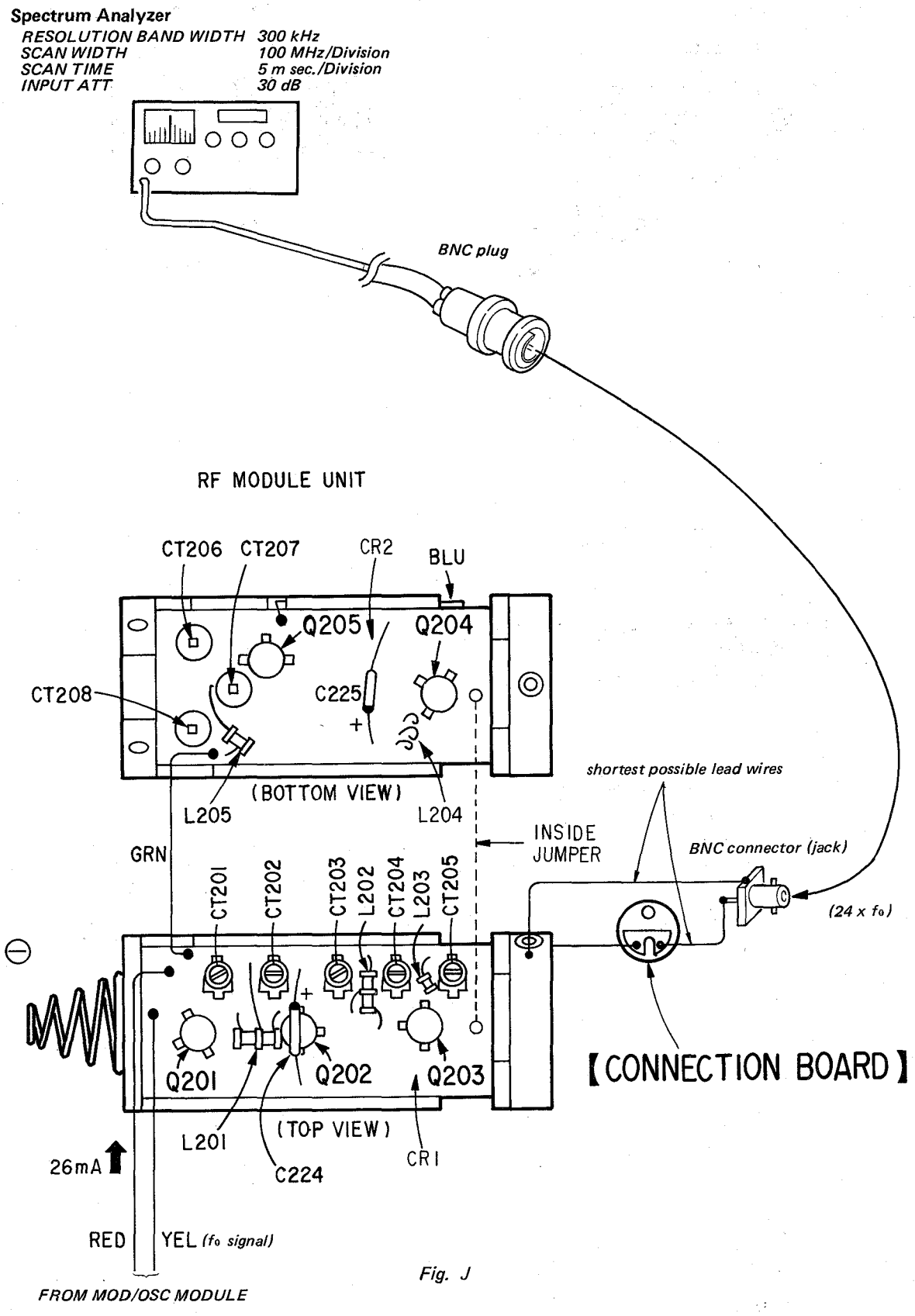
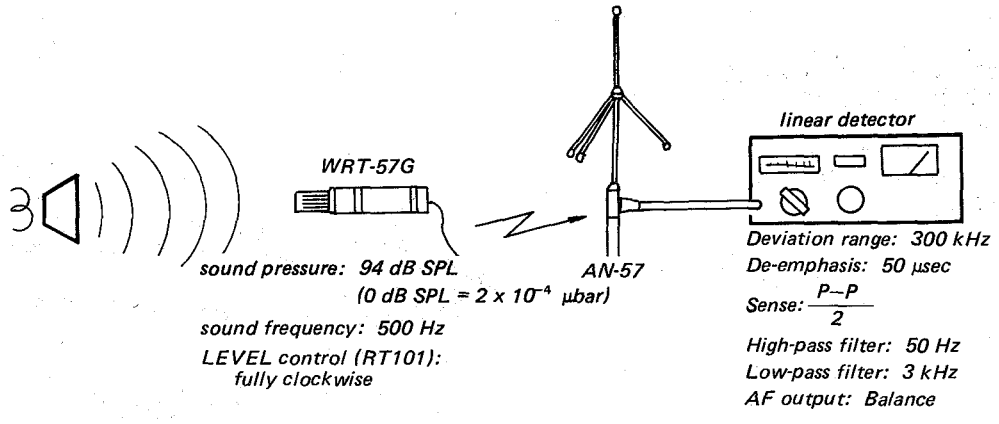


Fig. J

3-8. STANDARD SENSITIVITY ADJUSTMNET



Connection Diagram

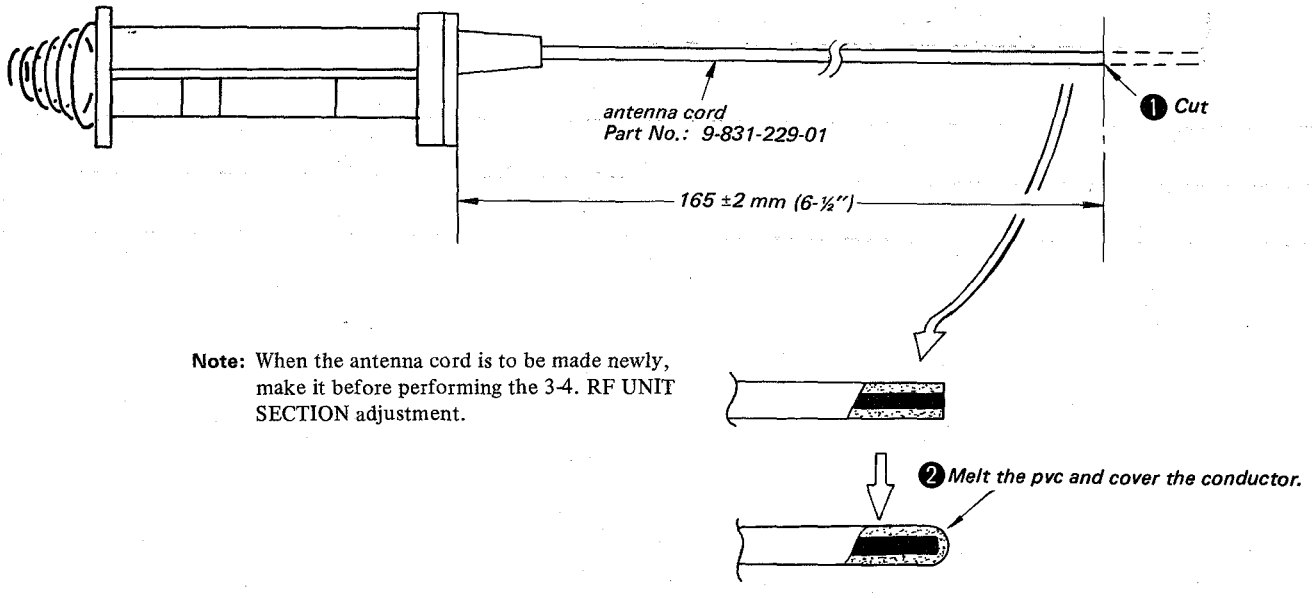
Measure the sensitivity in the unechoic room and adjust C112 so that frequency deviation is ±75 kHz ±3 kHz. (Also Fig. F)

Reference data

Frequency deviation	C112 Capacity	C112 Part No.
80 kHz	1 pF	1-102-938-00
85 kHz	2 pF	1-102-939-00
90 kHz	3 pF	1-102-940-00
95 kHz	4 pF	1-102-941-00
100 kHz	5 pF	1-102-942-00
105 kHz	6 pF	1-102-943-00
110 kHz	7 pF	1-102-944-00
115 kHz	8 pF	1-102-945-00
120 kHz	9 pF	1-102-946-00
125 kHz	10 pF	1-102-947-00

Fig. K

3-9. THE LENGTH OF AN ANTENNA CORD



Note: When the antenna cord is to be made newly, make it before performing the 3-4. RF UNIT SECTION adjustment.

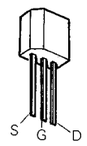
Fig. L

SECTION 4
DIAGRAMS

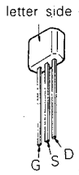
4-1. MOUNTING DIAGRAMS
— Conductor Side —

- **Semiconductor Lead Layouts**

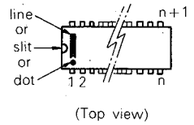
2SK23A



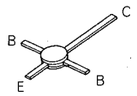
2SK193



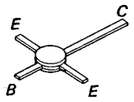
NJM4559M



2SC2144



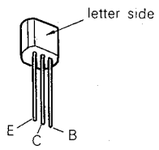
2SC2143

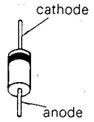


2SC2668

FC52-C
RD5.6E-Z7S
1SS119
ERA81-004

2SC2784





Note:

- ○— : parts extracted from the component side.
- ●— : parts extracted from the conductor side.
- [ ]— : indicates side identified with part number.
- ⊗ : Through hole.
- ▒ : B + pattern
- ○ ▒ : RF UNIT GROUND pattern.
- ● ▬▶▬ : signal path

A | B | C | D | E | F

1

2

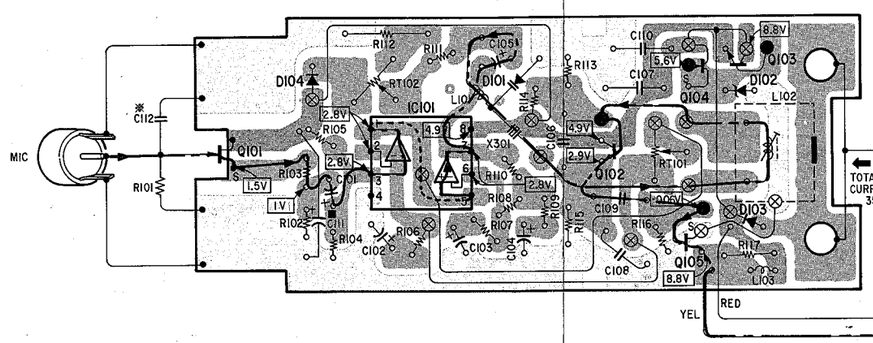
3

4

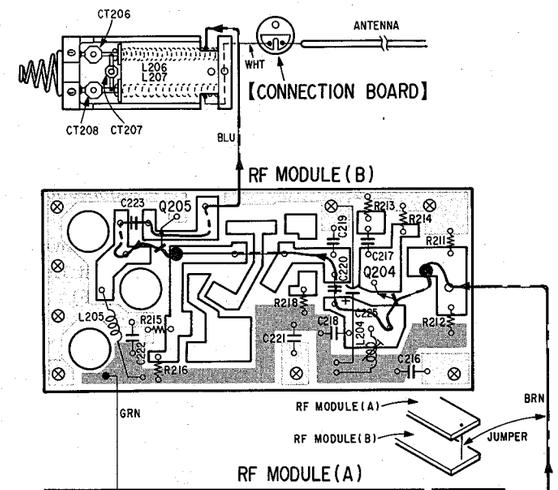
5

NOTE: OPPOSITE SIDES OF BOTH RF MODULE BOARDS ARE GROUNDING FOILS TO MAINTAIN GOOD RF GROUND.
ALL RESISTORS ARE SHEET TYPE.
ALL CAPACITORS ARE OF CHIP COMPONENT EXCEPT C224 AND C225.

【MOD/OSC BOARD】

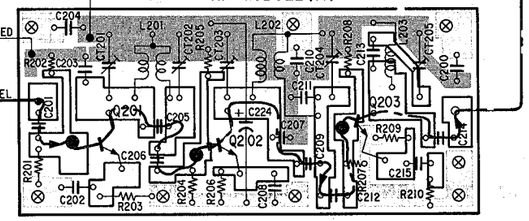


【CONNECTION BOARD】



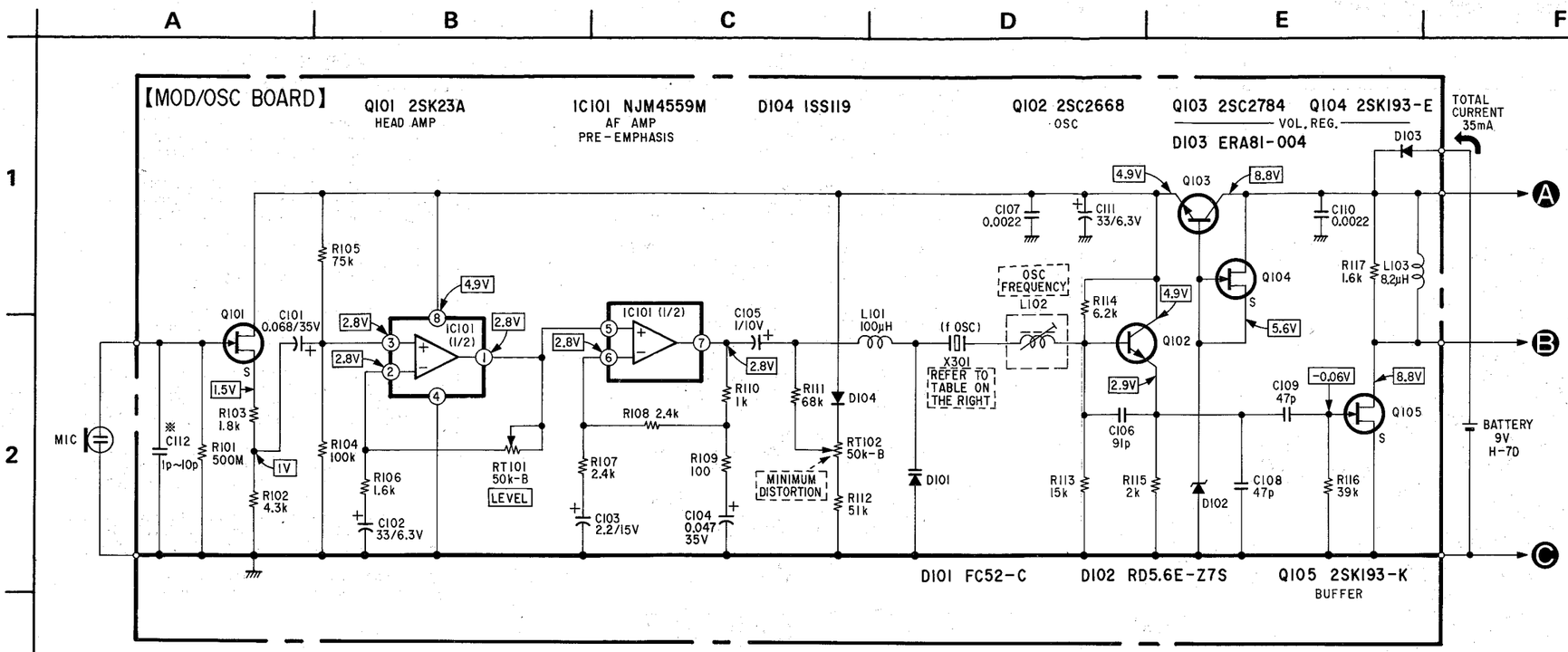
RF MODULE(B)

RF MODULE(A)



| | | |

4-2. SCHEMATIC DIAGRAM



Note:

- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/6 W unless otherwise noted. k : 1000 Ω, M : 1000 kΩ
- ※ : selected to yield optimum performance.
- ▭ : adjustment for repair.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal conditions with a VOM (20 kΩ/V).
- Voltage variations may be noted due to normal production tolerances.
- Total current is measured with no signal.

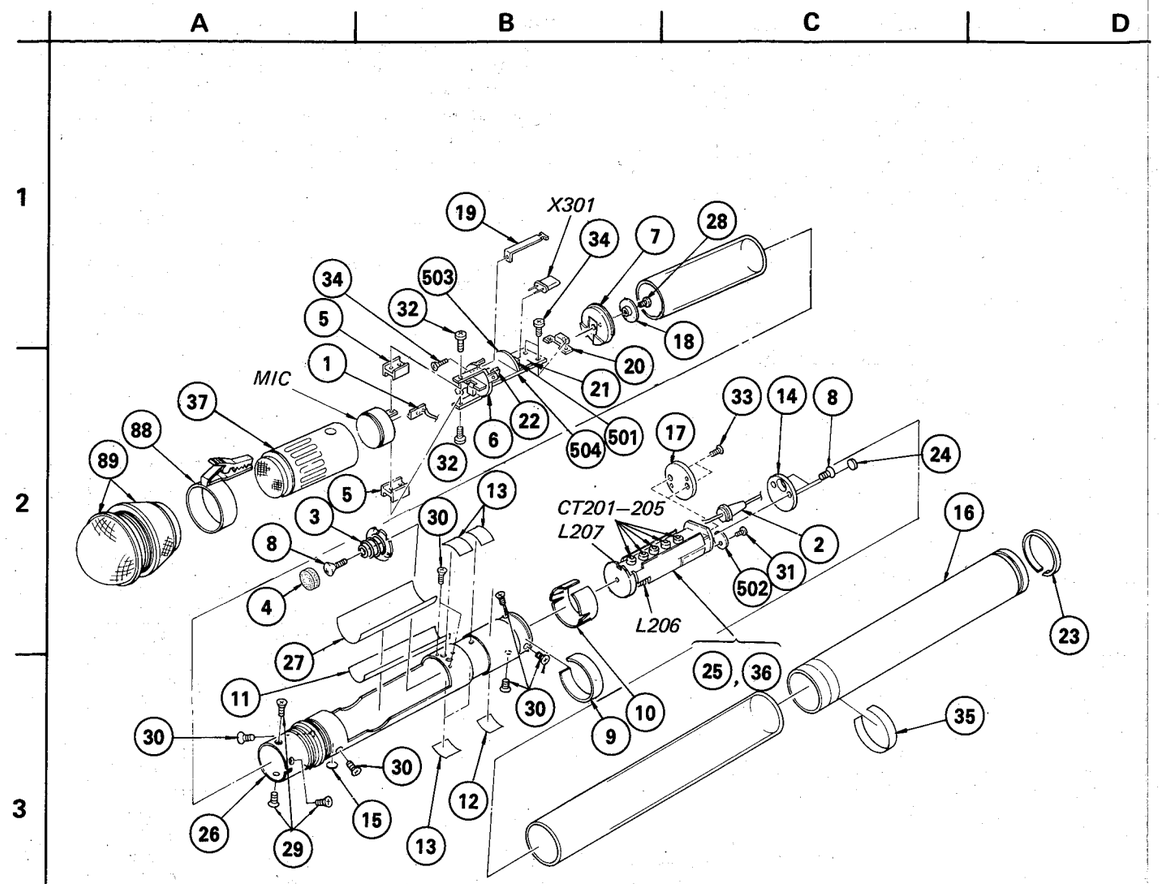
- Frequency Table

CH	X301 Crystal Frequency fosc (MHz)
21-6	19.6396
21-12	19.6708
21-20	19.7125
21-30	19.7646
21-42	19.8271
21-46	19.8479
22-6	19.9729
22-12	20.0042
22-20	20.0458
22-30	20.0979
22-42	20.1604
22-46	20.1813
23-6	20.3063
23-12	20.3375
23-20	20.3792
23-30	20.4313
23-42	20.4938
23-46	20.5146
24-6	20.6396
24-12	20.6708
24-20	20.7125
24-30	20.7646
24-42	20.8271
24-46	20.8479

fo = fosc −25 kHz

WRT-57G

SECTION 5
EXPLODED VIEW AND PARTS LIST



GENERAL SECTION

No.	Part No.	Description
1 ♣	2-509-609-00	TERMINAL
2	2-511-819-00	BUSHING, CABLE
3	2-519-335-00	SPRING
4	2-519-343-00	CUSHION
5	2-521-405-00	CUSHION, CAPSULE
6 ♣	2-521-406-00	FRAME, CAPSULE
7 ♣	2-521-410-00	PLATE, POSITIVE TERMINAL
8	2-522-019-00	SCREW, +K 2X3.5
9	2-526-008-00	RING, END
10	2-526-010-00	RING, STOPPER
11 ♣	2-526-012-00	FOIL (B), COPPER
12	2-526-032-00	SEAL (A), BLIND
13	2-526-033-00	SEAL (B), BLIND
14 ♣	2-526-034-00	RETAINER, BUSHING
15	2-526-038-00	SEAL (C), BLIND
16 ♣	2-526-042-00	CASE, MAIN
17 ♣	2-526-045-00	CHASSIS (B), FILTER
18	2-526-059-00	TERMINAL, POSITIVE
19 ♣	2-526-060-00	HOLDER (B), PC BOARD
20 ♣	2-526-061-00	HOLDER (A), PC BOARD
21 ♣	2-526-062-00	PLATE, SHIELD
22 ♣	2-526-063-00	BASE
23 ♣	2-526-064-00	LABEL, MODEL NUMBER
24 ♣	2-526-066-06	EMBLEM (21), CHANNEL
24 ♣	2-526-066-12	EMBLEM (21), CHANNEL
24 ♣	2-526-066-20	EMBLEM (21), CHANNEL
24 ♣	2-526-066-30	EMBLEM (21), CHANNEL
24 ♣	2-526-066-42	EMBLEM (21), CHANNEL
24 ♣	2-526-066-46	EMBLEM (21), CHANNEL
24 ♣	2-526-067-06	EMBLEM (22), CHANNEL
24 ♣	2-526-067-12	EMBLEM (22), CHANNEL
24 ♣	2-526-067-20	EMBLEM (22), CHANNEL
24 ♣	2-526-067-30	EMBLEM (22), CHANNEL
24 ♣	2-526-067-42	EMBLEM (22), CHANNEL
24 ♣	2-526-067-46	EMBLEM (22), CHANNEL
24 ♣	2-526-068-06	EMBLEM (23), CHANNEL
24 ♣	2-526-068-12	EMBLEM (23), CHANNEL
24 ♣	2-526-068-20	EMBLEM (23), CHANNEL
24 ♣	2-526-068-30	EMBLEM (23), CHANNEL
24 ♣	2-526-068-42	EMBLEM (23), CHANNEL
24 ♣	2-526-068-46	EMBLEM (23), CHANNEL

GENERAL SECTION

No.	Part No.	Description
24 ♣	2-526-069-06	EMBLEM (24), CHANNEL
24 ♣	2-526-069-12	EMBLEM (24), CHANNEL
24 ♣	2-526-069-20	EMBLEM (24), CHANNEL
24 ♣	2-526-069-30	EMBLEM (24), CHANNEL
24 ♣	2-526-069-42	EMBLEM (24), CHANNEL
24 ♣	2-526-069-46	EMBLEM (24), CHANNEL
25 ♣	2-526-070-00	CHASSIS, FILTER
26 ♣	2-526-071-00	FRAME
27	2-526-072-00	LABEL, BATTERY
28	7-621-555-42	SCREW +K 2X6
29	7-627-451-37	SCREW, PRECISION +K 1.4X2
30	7-627-452-17	SCREW, PRECISION +K 2X3
31	7-627-551-07	SCREW, PRECISION +P 1.4X1.6
32	7-627-551-67	SCREW, PRECISION +P 1.4X3.5
33	7-627-553-17	SCREW, PRECISION +P 2X2
34	7-627-553-27	SCREW, PRECISION +P 2X2.5
35	7-632-251-01	COLOR BAND, ADHESIVE (BROWN)
35	7-632-251-02	COLOR BAND, ADHESIVE (RED)
35	7-632-251-03	COLOR BAND, ADHESIVE (ORANGE)
35	7-632-251-04	COLOR BAND, ADHESIVE (YELLOW)
35	7-632-251-05	COLOR BAND, ADHESIVE (GREEN)
35	7-632-251-06	COLOR BAND, ADHESIVE (BLUE)
36	7-632-382-02	TUBE, TEFLON
37	A-4516-006-A	CASE (FRONT) ASSY

NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ♣ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:
- All capacitors are in µF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:µF, PF:µµF.

RESISTORS
- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

COILS
- MMH : mH, UH : µH

SEMICONDUCTORS
In each case, U : µ, for example:
UA···: µA···, UPA···: µPA···, UPC···: µPC, UPD···: µPD···

ACCESSORY & PACKING MATERIAL

No.	Part No.	Description
81	2-219-930-00	DRIVER, 1-GO
82 ♦	2-526-017-00	INDIVIDUAL CARTON
83 ♦	2-526-065-00	SEAL, G
84 ♦	2-527-514-06	SEAL, CHANNEL (CH 21-6)
84 ♦	2-527-514-06	SEAL, CHANNEL(A)(CH 22-6)
84 ♦	2-527-514-06	SEAL, CHANNEL(B)(CH 23-6)
84 ♦	2-527-514-06	SEAL, CHANNEL(C)(CH 24-6)
84 ♦	2-527-514-12	SEAL, CHANNEL (CH 21-12)
84 ♦	2-527-514-12	SEAL, CHANNEL(A)(CH 22-12)
84 ♦	2-527-514-12	SEAL, CHANNEL(B)(CH 23-12)
84 ♦	2-527-514-12	SEAL, CHANNEL(C)(CH 24-12)
84 ♦	2-527-514-20	SEAL, CHANNEL (CH 21-20)
84 ♦	2-527-514-20	SEAL, CHANNEL(A)(CH 22-20)
84 ♦	2-527-514-20	SEAL, CHANNEL(B)(CH 23-20)
84 ♦	2-527-514-20	SEAL, CHANNEL(C)(CH 24-20)
84 ♦	2-527-514-30	SEAL, CHANNEL (CH 21-30)
84 ♦	2-527-514-30	SEAL, CHANNEL(A)(CH 22-30)
84 ♦	2-527-514-30	SEAL, CHANNEL(B)(CH 23-30)
84 ♦	2-527-514-30	SEAL, CHANNEL(C)(CH 24-30)
84 ♦	2-527-514-42	SEAL, CHANNEL (CH 21-42)
84 ♦	2-527-514-42	SEAL, CHANNEL(A)(CH 22-42)
84 ♦	2-527-514-42	SEAL, CHANNEL(B)(CH 23-42)
84 ♦	2-527-514-42	SEAL, CHANNEL(C)(CH 24-42)
84 ♦	2-527-514-46	SEAL, CHANNEL (CH 21-46)
84 ♦	2-527-514-46	SEAL, CHANNEL(A)(CH 22-46)
84 ♦	2-527-514-46	SEAL, CHANNEL(B)(CH 23-46)
84 ♦	2-527-514-46	SEAL, CHANNEL(C)(CH 24-46)
85	2-599-201-11	MANUAL, INSTRUCTION
86	3-701-623-00	BAG, POLYETHYLENE
87 ♦	7-491-001-00	DESICCANT
88	A-4581-006-A	HOLDER ASSY, MICROPHONE; AD-53
89	X-2512-301-0	SCREEN ASSY, WIND; AD-37
90	X-2526-001-0	CASE ASSY, CARRYING

ELECTRICAL PARTS

Ref.No.	Part No.	Description
501 ♦	1-526-667-00	SOCKET, CRYSTAL
502 ♦	1-602-175-00	PC BOARD (A) , CONNECTION
503	1-603-429-00	PC BOARD, CRYSTAL SOCKET
504 ♦	A-4518-166-A	MOUNTED PCB, MOD/OSC
C101	1-131-275-00	CAP, TANTALUM 0.068MF
C102	1-131-386-00	CAP, TANTALUM 33MF
C103	1-131-259-00	CAP, TANTALUM 2.2MF
C104	1-131-274-00	CAP, TANTALUM 0.047MF
C105	1-131-254-00	CAP, TANTALUM 1MF
C106	1-102-972-00	CAP, CERAMIC 91PF
C107	1-161-028-00	CAP, CERAMIC 2200PF
C108	1-101-880-00	CAP, CERAMIC 47PF
C109	1-101-880-00	CAP, CERAMIC 47PF
C110	1-161-028-00	CAP, CERAMIC 2200PF
C111	1-131-253-00	CAP, TANTALUM 33MF
C112	1-102-938-00	CAP, CERAMIC 1PF SL
C112	1-102-939-00	CAP, CERAMIC 2PF SL
C112	1-102-940-00	CAP, CERAMIC 3PF SL
C112	1-102-941-00	CAP, CERAMIC 4PF SL
C112	1-102-942-00	CAP, CERAMIC 5PF SL
C112	1-102-943-00	CAP, CERAMIC 6PF SL
C112	1-102-944-00	CAP, CERAMIC 7PF SL
C112	1-102-945-00	CAP, CERAMIC 8PF SL
C112	1-102-946-00	CAP, CERAMIC 9PF SL
C112	1-102-947-00	CAP, CERAMIC 10PF SL
C224	1-131-259-00	CAP, ELEC TANTAL 2.2MF
C225	1-131-259-00	CAP, ELEC TANTAL 2.2MF
CR1	1-235-165-00	ENCAPSULATED COMPONENT
CR2	1-235-166-00	ENCAPSULATED COMPONENT
CT201	1-141-199-00	CAP, TRIMMER
CT202	1-141-199-00	CAP, TRIMMER
CT203	1-141-199-00	CAP, TRIMMER
CT204	1-141-199-00	CAP, TRIMMER
CT205	1-141-199-00	CAP, TRIMMER
CT206	1-141-274-00	CAP, TRIMMER
CT207	1-141-273-00	CAP, TRIMMER
CT208	1-141-274-00	CAP, TRIMMER
D101	8-719-900-50	DIODE FC52-C
D102	8-719-156-23	DIODE RD5.6E-Z7S
D103	8-719-981-01	DIODE ERA81-004
D104	8-719-911-19	DIODE 1SS119
IC101	8-759-700-38	IC NJM4559M

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ♦ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

COILS

- MMH : mH, UH : μH

SEMICONDUCTORS

In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC, UPD···: μPD···

ELECTRICAL PARTS

Ref.No.	Part No.	Description
L101	1-407-823-00	MICRO INDUCTOR 100UH
L102	1-426-011-00	COIL, MODULATION
L103 ♦	1-405-786-00	COIL, CORE
L201 ♦	1-426-051-11	COIL
L202 ♦	1-426-052-11	COIL
L203 ♦	1-426-050-11	COIL
L204 ♦	1-422-018-11	COIL, AIR-CORE
L205 ♦	1-426-050-11	COIL
L206 ♦	1-422-084-11	COIL, AIR-CORE
L207 ♦	1-422-083-11	COIL, AIR-CORE
MIC	X-2526-003-1	CAPSULE ASSY, MICROPHONE; CU17-01
Q101	8-722-384-02	TRANSISTOR 2SK23A
Q102	8-729-266-83	TRANSISTOR 2SC2668
Q103	8-729-178-43	TRANSISTOR 2SC2784
Q104	8-729-119-32	TRANSISTOR 2SK193-E
Q105	8-729-119-35	TRANSISTOR 2SK193-K
Q201	8-765-361-00	TRANSISTOR 2SC2144
Q202	8-765-361-00	TRANSISTOR 2SC2144
Q203	8-765-361-00	TRANSISTOR 2SC2144
Q204	8-765-430-00	TRANSISTOR 2SC2143
Q205	8-765-430-00	TRANSISTOR 2SC2143
R101	1-208-254-00	RESISTOR, MICRO 500M
R102	1-247-846-00	CARBON 4.3K 5% 1/6W
R103	1-247-837-00	CARBON 1.8K 5% 1/6W
R104	1-247-879-00	CARBON 100K 5% 1/6W
R105	1-247-876-00	CARBON 75K 5% 1/6W
R106	1-247-836-00	CARBON 1.6K 5% 1/6W
R107	1-247-840-00	CARBON 2.4K 5% 1/6W
R108	1-247-840-00	CARBON 2.4K 5% 1/6W
R109	1-247-807-00	CARBON 100 5% 1/6W
R110	1-247-831-00	CARBON 1K 5% 1/6W
R111	1-247-875-00	CARBON 68K 5% 1/6W
R112	1-247-872-00	CARBON 51K 5% 1/6W
R113	1-247-859-00	CARBON 15K 5% 1/6W
R114	1-247-850-00	CARBON 6.2K 5% 1/6W
R115	1-247-838-00	CARBON 2K 5% 1/6W
R116	1-247-869-00	CARBON 39K 5% 1/6W
R117	1-247-836-00	CARBON 1.6K 5% 1/6W
RT101	1-228-461-00	RES, ADJ, CERMET 50K
RT102	1-228-461-00	RES, ADJ, CERMET 50K

ELECTRICAL PARTS

Ref.No.	Part No.	Description
X301	1-567-026-00	OSCILLATOR, CRYSTAL (CH 21-6)
X301	1-567-027-00	OSCILLATOR, CRYSTAL (CH 21-12)
X301	1-567-028-00	OSCILLATOR, CRYSTAL (CH 21-20)
X301	1-567-029-00	OSCILLATOR, CRYSTAL (CH 21-30)
X301	1-567-030-00	OSCILLATOR, CRYSTAL (CH 21-42)
X301	1-567-031-00	OSCILLATOR, CRYSTAL (CH 21-46)
X301	1-567-032-00	OSCILLATOR, CRYSTAL (CH 22-6)
X301	1-567-033-00	OSCILLATOR, CRYSTAL (CH 22-12)
X301	1-567-034-00	OSCILLATOR, CRYSTAL (CH 22-20)
X301	1-567-035-00	OSCILLATOR, CRYSTAL (CH 22-30)
X301	1-567-036-00	OSCILLATOR, CRYSTAL (CH 22-42)
X301	1-567-037-00	OSCILLATOR, CRYSTAL (CH 22-46)
X301	1-567-038-00	OSCILLATOR, CRYSTAL (CH 23-6)
X301	1-567-039-00	OSCILLATOR, CRYSTAL (CH 23-12)
X301	1-567-040-00	OSCILLATOR, CRYSTAL (CH 23-20)
X301	1-567-041-00	OSCILLATOR, CRYSTAL (CH 23-30)
X301	1-567-042-00	OSCILLATOR, CRYSTAL (CH 23-42)
X301	1-567-043-00	OSCILLATOR, CRYSTAL (CH 23-46)
X301	1-567-044-00	OSCILLATOR, CRYSTAL (CH 24-6)
X301	1-567-045-00	OSCILLATOR, CRYSTAL (CH 24-12)
X301	1-567-046-00	OSCILLATOR, CRYSTAL (CH 24-20)
X301	1-567-047-00	OSCILLATOR, CRYSTAL (CH 24-30)
X301	1-567-048-00	OSCILLATOR, CRYSTAL (CH 24-42)
X301	1-567-049-00	OSCILLATOR, CRYSTAL (CH 24-46)

NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ♦ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:
- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

COILS
- MMH : mH, UH : μH

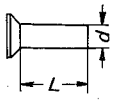
SEMICONDUCTORS
In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC, UPD···: μPD···

1/6 WATT CARBON RESISTORS

Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*
1.0	–	10	1-247-783-XX	100	1-247-807-XX	1.0k	1-247-831-XX	10k	1-247-855-XX	100k	1-247-879-XX	1.0M	1-247-903-XX
1.1	–	11	1-247-784-XX	110	1-247-808-XX	1.1k	1-247-832-XX	11k	1-247-856-XX	110k	1-247-880-XX	1.1M	–
1.2	–	12	1-247-785-XX	120	1-247-809-XX	1.2k	1-247-833-XX	12k	1-247-857-XX	120k	1-247-881-XX	1.2M	–
1.3	–	13	1-247-786-XX	130	1-247-810-XX	1.3k	1-247-834-XX	13k	1-247-858-XX	130k	1-247-882-XX	1.3M	–
1.5	–	15	1-247-787-XX	150	1-247-811-XX	1.5k	1-247-835-XX	15k	1-247-859-XX	150k	1-247-883-XX	1.5M	–
1.6	–	16	1-247-788-XX	160	1-247-812-XX	1.6k	1-247-836-XX	16k	1-247-860-XX	160k	1-247-884-XX	1.6M	–
1.8	–	18	1-247-789-XX	180	1-247-813-XX	1.8k	1-247-837-XX	18k	1-247-861-XX	180k	1-247-885-XX	1.8M	–
2.0	–	20	1-247-790-XX	200	1-247-814-XX	2.0k	1-247-838-XX	20k	1-247-862-XX	200k	1-247-886-XX	2.0M	–
2.2	1-247-767-XX	22	1-247-791-XX	220	1-247-815-XX	2.2k	1-247-839-XX	22k	1-247-863-XX	220k	1-247-887-XX	2.2M	–
2.4	1-247-768-XX	24	1-247-792-XX	240	1-247-816-XX	2.4k	1-247-840-XX	24k	1-247-864-XX	240k	1-247-888-XX	2.4M	–
2.7	1-247-769-XX	27	1-247-793-XX	270	1-247-817-XX	2.7k	1-247-841-XX	27k	1-247-865-XX	270k	1-247-889-XX	2.7M	–
3.0	1-247-770-XX	30	1-247-794-XX	300	1-247-818-XX	3.0k	1-247-842-XX	30k	1-247-866-XX	300k	1-247-890-XX	3.0M	–
3.3	1-247-771-XX	33	1-247-795-XX	330	1-247-819-XX	3.3k	1-247-843-XX	33k	1-247-867-XX	330k	1-247-891-XX	3.3M	–
3.6	1-247-772-XX	36	1-247-796-XX	360	1-247-820-XX	3.6k	1-247-844-XX	36k	1-247-868-XX	360k	1-247-892-XX	3.6M	–
3.9	1-247-773-XX	39	1-247-797-XX	390	1-247-821-XX	3.9k	1-247-845-XX	39k	1-247-869-XX	390k	1-247-893-XX	3.9M	–
4.3	1-247-774-XX	43	1-247-798-XX	430	1-247-822-XX	4.3k	1-247-846-XX	43k	1-247-870-XX	430k	1-247-894-XX	4.3M	–
4.7	1-247-775-XX	47	1-247-799-XX	470	1-247-823-XX	4.7k	1-247-847-XX	47k	1-247-871-XX	470k	1-247-895-XX	4.7M	–
5.1	1-247-776-XX	51	1-247-800-XX	510	1-247-824-XX	5.1k	1-247-848-XX	51k	1-247-872-XX	510k	1-247-896-XX	5.1M	–
5.6	1-247-777-XX	56	1-247-801-XX	560	1-247-825-XX	5.6k	1-247-849-XX	56k	1-247-873-XX	560k	1-247-897-XX	5.6M	–
6.2	1-247-778-XX	62	1-247-802-XX	620	1-247-826-XX	6.2k	1-247-850-XX	62k	1-247-874-XX	620k	1-247-898-XX	6.2M	–
6.8	1-247-779-XX	68	1-247-803-XX	680	1-247-827-XX	6.8k	1-247-851-XX	68k	1-247-875-XX	680k	1-247-899-XX	6.8M	–
7.5	1-247-780-XX	75	1-247-804-XX	750	1-247-828-XX	7.5k	1-247-852-XX	75k	1-247-876-XX	750k	1-247-900-XX	7.5M	–
8.2	1-247-781-XX	82	1-247-805-XX	820	1-247-829-XX	8.2k	1-247-853-XX	82k	1-247-877-XX	820k	1-247-901-XX	8.2M	–
9.1	1-247-782-XX	91	1-247-806-XX	910	1-247-830-XX	9.1k	1-247-854-XX	91k	1-247-878-XX	910k	1-247-902-XX	9.1M	–
												10M	–

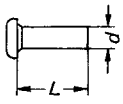
DIMENSIONS AND PART NO. OF PRECISION SCREWS

⊕ *K*
(Flat-countersunk-head screw)



Type	Size (mm) (d × L)	Part No.	
		Black	Silver
Type 1	K1.4 × 1.6	7-627-451-08	7-627-451-07
	K1.4 × 1.8		
	K1.4 × 2	7-627-451-38	7-627-451-37
	K1.4 × 2.2		
	K1.4 × 2.5	7-627-451-18	7-627-451-17
	K1.4 × 2.8		
	K1.4 × 3	7-627-451-28	7-627-451-27
	K1.4 × 3.5		7-627-451-47
	K1.4 × 4		
	K1.4 × 4.5		
	K1.4 × 5	7-627-451-78	7-627-451-77
	K1.7 × 1.8		
	K1.7 × 2		
	K1.7 × 2.2		
	K1.7 × 2.5		
	K1.7 × 2.8		
	K1.7 × 3		
	K1.7 × 3.5		
	K1.7 × 4	7-627-450-78	
	K1.7 × 4.5		
	K1.7 × 5		
	K1.7 × 5.5		
	K1.7 × 6		
	K2 × 2	7-627-452-08	7-627-452-07
	K2 × 2.2		
	K2 × 2.5		
	K2 × 2.8		
	K2 × 3	7-627-452-18	7-627-452-17
	K2 × 3.5		
	K2 × 4	7-627-452-28	
	K2 × 4.5		
	K2 × 5	7-627-452-38	
	K2 × 5.5		
	K2 × 6		
	K2 × 7		
	K2 × 8		

⊕ *P*
(Pan-head screw)



Type	Size (mm) (d × L)	Part No.	
		Black	Silver
Type 1	P1.4 × 1.4		7-627-551-47
	P1.4 × 1.6	7-627-551-08	7-627-551-07
	P1.4 × 1.8		
	P1.4 × 2	7-627-551-18	7-627-551-17
	P1.4 × 2.2		
	P1.4 × 2.5	7-627-551-28	7-627-551-27
	P1.4 × 2.8	7-627-551-88	
	P1.4 × 3	7-627-551-58	7-627-551-57
	P1.4 × 3.5	7-627-551-68	7-627-551-67
	P1.4 × 4	7-627-551-78	7-627-551-77
	P1.4 × 4.5		
	P1.4 × 5	7-627-551-38	7-627-551-37
	P1.7 × 1.6	7-627-552-18	
	P1.7 × 1.8		
	P1.7 × 2	7-627-552-28	7-627-552-27
	P1.7 × 2.2		
	P1.7 × 2.5	7-627-552-08	7-627-552-07
	P1.7 × 2.8		
	P1.7 × 3	7-627-552-38	7-627-552-37
	P1.7 × 3.5	7-627-552-78	
	P1.7 × 4	7-627-552-48	7-627-552-47
	P1.7 × 4.5		7-627-552-67
	P1.7 × 5	7-627-552-58	7-627-552-57
	P1.7 × 5.5		
	P1.7 × 6		
	P2 × 1.8		
	P2 × 2	7-627-553-18	7-627-553-17
	P2 × 2.2		7-627-554-07
	P2 × 2.5	7-627-553-28	7-627-553-27
	P2 × 2.8		
	P2 × 3	7-627-553-38	7-627-553-37
	P2 × 3.5		7-627-554-17
	P2 × 4	7-627-553-48	7-627-553-47
	P2 × 4.5	7-627-553-58	7-627-553-57
	P2 × 5		7-627-553-67
	P2 × 5.5		
	P2 × 6		
	P2 × 7	7-627-553-88	7-627-553-87
	P2 × 8	7-627-553-98	7-627-553-97
	P2 × 10	7-627-553-78	7-627-553-77
Type 3	P1.4 × 1.4		7-627-850-37
	P1.4 × 1.6		7-627-850-47
	P1.4 × 1.8		7-627-850-77
	P1.4 × 2	7-627-850-08	7-627-850-07
	P1.4 × 2.2		
	P1.4 × 2.5	7-627-850-18	7-627-850-17
	P1.4 × 2.8		
	P1.4 × 3	7-627-850-28	7-627-850-27
	P1.4 × 3.5	7-627-850-58	7-627-850-57
	P1.4 × 4	7-627-850-68	7-627-850-67
	P1.4 × 4.5		7-627-851-17
	P1.4 × 5		7-627-851-27

9-951-100-11

Sony Corporation
Communication Products Group

English
83A0556-1
Printed in Japan
© 1983